

Cape (east to Bushmanland and Kenhardt), and southern Great Namaqualand (all toponymical of *E. i. icteropygialis*) and those of the Asbestos Mountains, north of Prieska on the central Orange (toponymical of *E. i. perimacha* Oberholser, 1920: Asbestos Mountains, northern Cape), are not separable in any way. On the basis of this finding I placed *E. i. perimacha* in the synonymy of *E. i. icteropygialis*.

In the light of White's criticisms, I have re-studied the good series in the Durban Museum, and confirm that *E. i. perimacha* is a straight synonym of *E. i. icteropygialis*. White based his findings on a study of the British Museum series, but I submit that his material was inadequate, as by Macdonald's telling this collection does not contain any toponymical *E. i. icteropygialis*, whereas the Durban Museum collection possesses series from both the north-western Cape and the Asbestos Mountains. The material in the Durban Museum reveals graded change in South-West Africa from the typical race to paler backed, whiter throated and breasted and clearer yellow bellied birds in Damaraland, to which the name *E. i. sharpei* Reichenow, 1905: Windhoek, is applicable. A further study of our material confirms my earlier view that this is a good race, which ranges from south-western and southern Angola, southwards through the Kaokoveld and Ovamboland to Damaraland, northern Great Namaqualand, and the western, central and southern Bechuanaland Protectorate. As stated, it grades into the nominotypical race to the south of its ascertained range in South-West Africa and to the eastward, as shown by a good series in the National Museum of Southern Rhodesia from just north of the Molopo R. (discussed by White, *loc. cit.*, under "The Bechuanaland form").

Literature cited:—

- Clancey, P. A. 1959 *Durban Museum Novitates*, vol. v, 16, pp. 204–206.  
 Forbes, V. S. 1958 *Ostrich*, vol. xxix, 2, pp. 79–85.  
 Grant, C. H. B. 1957 *Ostrich*, vol. xxviii, 2, pp. 83–97.  
 Lafresnaye, F. de 1839 *Rev. Zool.*, p. 258.  
 Macdonald, J. D. 1957 *Contribution to the Ornithology of Western South Africa*, p. 136.  
 White, C. M. N. 1961 *Bulletin of the British Ornithologists' Club*, vol. 81, 5, pp. 90–91.  
 Winterbottom, J. M. 1958 *Bulletin of the British Ornithologists' Club*, vol. 78, 7, pp. 132–133.

## More Snake and Lizard Predators of Birds

by CHARLES R. S. PITMAN

### PART II

#### (ix) Constrictors

(a) *Python sebae* (Gmelin), African Python.

AFRICA: SUDAN. Sweeney (1954) records an 8 ft. python swallowing a Guinea-fowl *Numida meleagris* (L.); three specimens (1953), between 3 and 4 ft., each containing bird remains—the only identifiable bird, in two of them caught on the same day within 100 yards of each other, being the Chestnut-crowned Sparrow Weaver, *Plocepasser superciliosus* (Cretzschmar); 4½ ft. specimen (1953) when caught disgorged three Guinea-fowl chicks; 3½ ft. specimen (1953) contained an unidentified sparrow; 3½ ft. specimen (1953) disgorged an adult Rock Bantam, *Ptilopachus*

*petrosus* (Gmelin); and 4 ft. specimen (1955) disgorged two unidentified Ploceidae.

KENYA. Mr. D. D. Reucassel came across a number of Black-winged Stilts, *Himantopus himantopus* (L.) hovering over the water and creating a terrific din above a huge python which was constricting an Egyptian Goose, *Alopochen aegyptiacus* (L.) some 30 ft. from the bank.

UGANDA. Vide (4: para. 212) a python shot in Karamoja was "found to have a partially decomposed knob-nosed goose in its stomach".

TANGANYIKA. Sweeney (1950) records a 5 ft. specimen in the Usambara Mountains which contained an unidentified thrush.

NYASALAND. Sweeney (1959) describes how a 10 ft. specimen, caught in a village hen-house, disgorged three large domestic chickens; and in the same village a few days later another python, when captured, disgorged two chickens. In 1957 two specimens, 3 and 3½ ft. in length, killed by the Ruo river contained unidentified small birds (Ploceidae?) A 9 ft. specimen (1957) disgorged two Guinea-fowl, *N. meleagris*. A 3 ft. specimen taken (1957) in an African hut contained an adult Red-eyed Dove, *Streptopelia semitorquata* (Rüppell). In the same region (1959) a 4 ft. specimen contained two Collared Doves, *Streptopelia capicola* (Sundevall).

NORTHERN RHODESIA. Mr. J. B. Shenton, Game Ranger, records that one of three pythons varying in size from 7 ft. to 12 ft., when caught regurgitated a fresh Guinea-fowl, *N. meleagris*.

Newby describes three cases of bird predation by pythons—in 1959, at Chingola, an 11 ft. specimen raided a fowl-run and consumed two laying fowls; and in 1960, near Kitwe, a 4 ft. specimen entered a fowl-run and swallowed a pullet, and a 10 ft. example swallowed two full-grown fowls.

Simpson records how a 2½ ft. python climbed a tree to seize a fledgling sparrow and immediately constricted it with 1½ coils. The bird was eaten on the branch.

(b) *Python regius* (Shaw), Royal Python.

SUDAN. Sweeney (1954) writes that a 3 ft. specimen caught at Kadugli, in the Nuba Mountains, Kordofan disgorged a Galago (or Bush Baby), *Galago senegalensis* E. Geoffroy, and an unidentified Ploceid.

(c) *Python reticulatus* (Schneid.), Reticulated or Malay Python; which is the world's greatest snake.

S.E. ASIA. M. W. F. Tweedie (26: p. 32) says it preys mainly on birds and mammals.

(d) *Python molurus* (L.), Indian Python.

S.E. ASIA. Wall (25: pp. 57-58) "a peacock in the coils of a python in Ceylon"; also, "eat a pheasant" (*Gennaesus lineata*). He further records one killed swallowing a chicken; another swallowed three ducks; and in Assam in a fowl-run one made a meal of five ducks, four fowls and one pigeon.

\* Lineated or Burmese Silver Pheasant.

## (x) Others

## Solid Toothed.

General. According to Albert and Anna Wright (<sup>21</sup>) who quote relevant references, the following common, harmless snakes of the United States and Canada have been known to prey on birds and sometimes their eggs:—

- Vol. I. p. 58      *Charina bottae utahensis* Van Denburgh, Great Basin Rubber Snake.
- p. 98      *Arizona elegans eburnata* Klauber, Desert Glossy Snake.
- p. 141     *Coluber constrictor flaviventris* (Say), Blue Racer.
- p. 202     *Drymarchon corais couperi* (Holbrook), Indigo Snake.
- pp. 221–269 Eight species of *Elaphe*, including Chicken Snakes.
- p. 300     *Heterodon nasicus nasicus* Baird and Girard, Hog-nosed snake.
- p. 309     *Heterodon platyrhinos platyrhinos* (Latreille), Hog-nosed Snake or Spreading Adder.
- pp. 351–394 Seven species of *Lampropeltis*, King Snakes.
- pp. 429–465 Eight species of *Masticophis*, including Whip Snakes.
- Vol. II. pp. 595–618 Six species of *Pituophis*, including Gopher Snakes.
- p. 651     *Salvadora grahamiae lineata* Schmidt, Texas Patch-nosed Snake.
- pp. 777–841 Three species of *Thamnophis*, Garter Snakes.

B. S. Wright writing from Canada lists as bird-eaters the following colubrids:—

- |  |                       |
|--|-----------------------|
| <i>Coluber constrictor constrictor</i> (L.)  | Black Snake or Racer. |
| <i>Lampropeltis getulus getulus</i> (L.)     | Eastern King Snake.   |
| <i>Pituophis melanoleucus sayi</i> (Schleg.) | Bull Snake.           |
| <i>Thamnophis sirtalis sirtalis</i> (L.)     | Garter Snake.         |

(a) *Xenopeltis unicolor* Reinw. in Boie, Sunbeam Snake, attaining a length of 4 ft.

INDO-PACIFIC REGION. According to Loveridge (<sup>10</sup>: p. 124), although this species is a burrower its prey includes "occasionally even a bird".

(b) *Natrix natrix* (L.), Grass Snake.

EUROPE: BRITAIN. Wenner photographed a grass snake just after swallowing a Meadow Pipit, *Anthus pratensis* (L.).

Mr. G. D. Lake, in *The Field* (<sup>11</sup>: p. 494) "I have caught a (grass) snake with its head in a willow wren's nest swallowing the last of a brood of five . . . Like adders they can climb to nests in gorse and low bushes."

L. Styles, in *The Field* (<sup>12</sup>: p. 30), "Once caught a grass snake devouring a young chaffinch". The parents were attacking the snake.

\* In the *Sea Swallow* (<sup>13</sup>: pp. 22-23), Lieut. Comdr. T. Emanuel, R.N. describes how a grass snake raided a pied wagtail's nest and consumed the two newly hatched chicks it contained and then took possession of the nest, which also held two eggs, for about a day and a half. When the snake eventually departed one egg had been broken and the other had disappeared—presumably with the snake.

(c) *Thamnophis* sp. Cope, Garter Snake.

NORTH AMERICA: BRITISH COLUMBIA. W. Earl Godfrey, Curator of Ornithology, National Museum of Canada (Ottawa), in 1953, killed one of these snakes with a nearly-dead juvenal Vesper Sparrow, *Pooecetes gramineus* (Gmel.), capable of flight, in its mouth. The bird was held by the neck.

(d) *Elaphe taniura* Cope, Marbled Cave Snake or Stripe-tailed Racer. Attains a length of 5 ft.

BORNEO. Lord Medway, at one time Technical Assistant, Sarawak Museum, says (<sup>6</sup>: p. 69) this harmless black and white snake (which is primarily a bat-eater) roams freely through the dark passages of the 'birds' nest' Swiftlet, *Collocalia* nesting caves and feeding on the fallen young.

Harrison, referring to the 'Cave Racer', *E. taniura* (*in litt.*) "at Niah Caves and elsewhere lives inside the caves and is known to me and all there to climb to the nests of *Collocalia* spp. and take the eggs. I also have a film . . . of one taking a swiftlet fallen to the cave floor in failing to fly out from its initial ex-nestling take-off in darkness. It breaks the eggs and digests quickly."

Loveridge too (<sup>10</sup>: pp. 128-9) describes it is an active climber which subsists mainly on bats. It is a constrictor.

(e) *Pituophis catenifer* (Blainv.), Bull Snake; up to 4½ ft. in length.

CANADA: ALBERTA. Mr. William Wishart, Game Biologist, Province of Alberta, suggests that this snake is one of three species—there are only seven species of snakes known in Alberta—which prey on the eggs and occasionally on the young of the ground-nesting species of birds that occur on the prairies.

The Wrights (<sup>21</sup>: p. 595) include "birds" in its food.

(f) *Philothamnus hoplogaster* (Günther), South-eastern Green Snake.

SOUTHERN RHODESIA. Turnbull-Kemp shot one of these snakes when raiding a nest, with an egg of the Cape Turtle Dove, *S. capicola* in its mouth.

(g) *Philothamnus semivariegatus* (A. Smith), Spotted Wood Snake or Bush Snake.

AFRICA: NYASALAND. Sweeney, at Chiromo (1958), found one of these snakes in an arboreal bird's nest, species not known.

(h) *Ptyas mucosus* (L.) Greater Rat Snake, which attains a length of 10 ft. S.E. ASIA. According to Loveridge (<sup>10</sup>: p. 128) its skill in climbing enables it to capture birds.

Wall (<sup>25</sup>: p. 171) describes an attack on a nest of young birds and a fledgling being devoured.

This snake does not constrict, but presses down its prey with a loop of its coils.

(j) *Heterodon nasicus* Baird and Girard, Hog-nosed Snake; attains a length of 2 ft.

CANADA: ALBERTA. See Wishart, with reference to *Pituophis catenifer*.

The Wrights (<sup>21</sup>: p. 300) include "sparrows" in its food.

(k) *Dendrelaphis tristis* (Daud.), Seba's Bronze-back.

INDIA and CEYLON. Wall (<sup>25</sup>: pp. 221-222) records it raiding the nest and eggs of the Black-backed Robin, *Thamnobia fulicata* (L.).

(l) *Oligodon purpurascens* (Schleg.), Brown Kukri Snake.

MALAYA. According to Tweedie (<sup>26</sup>: p. 46), eats birds.

#### Back Fanged.

(a) *Telescopus dhara* (= *Tarbophis obtusus*) (Forskål), Blunt-nosed Cat Snake or Large-eyed Snake.

AFRICA: SUDAN. Vide (<sup>14</sup>: p. 7) "Two specimens of the Blunt-nosed Cat Snake (*Tarbophis obtusus* Reuss), the commonest snake in the houses and gardens of Khartoum, were found to contain partly-digested house sparrows."

(b) *Telescopus* (= *Tarbophis*) *semiannulatus* A. Smith, African Tiger Snake.

SOUTH AFRICA. Stevenson-Hamilton (<sup>15</sup>: p. 122) "the tiger snake (*Tarbophis semiannulatus*), which is often discovered living among a colony of weaver birds at nesting time, presumably preying mainly on their young."

(c) *Boiga blandingii* Hallowell, Blanding's Tree Snake.

WEST AFRICA: NIGERIA. Dr. S. F. Woodward (1960) found four birds in the stomach of one of these snakes.

(d) *Boiga dendrophila* (Boie), Mangrove Snake. Attains a length of 7 ft. ASIA: BORNEO. According to Harrisson, this snake occurs on the Turtle Islands, one of which is five miles off shore. It is known to take baby turtles and might take the eggs and young of sea birds. Loveridge (<sup>10</sup>: p. 132) says birds are eaten. Mr. N. S. Haile, Hon. Curator of Reptiles, Sarawak Museum, has found hen's eggs in this *Boiga*.

(e) All the Asian Cat Snakes of the genus *Boiga* (formerly *Ddisapamorphus*) kill by constriction and are bird, nestling and egg-eaters. Wall refers to:—

(<sup>25</sup>: p. 272) *Dipsadamorphus trigonatus* (Schneid.) from India and Transcaspia. A Robin, *Thamnobia cambayensis* (Lath.) was found in one specimen. "In captivity feeds freely on small birds."

(<sup>25</sup>: p. 279) *D. ceylonensis* (Günth.), from S. India and Ceylon; "devours birds". One got into an aviary and ate a canary, and was probably responsible for previous loss of six other canaries and Java sparrows.

(<sup>25</sup>: p. 287) *D. forsteni* (Dum. and Bibr.), from India and Ceylon; grows to 7 ft. "A voracious poultry eater"; "also robs pigeon houses, ascending by the one smooth supporting post". One was caught in the act of swallowing a fowl.

Also, see (<sup>26</sup>: p. 74).

(f) *Dryophis nasutus* (Lacép.), Long-nosed Whip Snake, attaining a length of 5 ft.

S.E. ASIA. Loveridge (<sup>10</sup>: p. 135), "Small birds are also eaten". Wall (<sup>25</sup>: p. 295) "Several records of birds being eaten"; and Tweedie (<sup>26</sup>: p. 79), *Dryophis*, Whip Snakes "feeding on small birds".

(g) *Psammophis sibilans* (L.) Hissing Sand Snake or Sun Snake.

AFRICA: NORTHERN RHODESIA. Newby (1960) records a 3½ ft. specimen which entered an aviary near Kitwe and seized and swallowed a tame canary. This snake was subsequently kept in captivity and fed on rodents. Also, "Occasionally *P. sibilans* will constrict (dead) birds after seizing should their relative size be larger than is perfectly comfortable".

#### (xi) General

ADEN. Capt. H. E. Ennion (1960) in *The Field* (<sup>16</sup>: p. 250) describes seeing an unidentified snake with three coils of its body round a Little Stint, *Calidris minuta* (Leisler), by a brackish pool near Zingibar, 30 miles N.E. of Aden. As he approached, the snake abandoned the freshly killed bird and disappeared into the long grass. The date, 30th July, 1960, is interesting, being rather early for this palearctic migrant.

*Vide* Newby *ante*, *P. sibilans* in certain circumstances is known to constrict birds, and the identity of Ennion's snake is probably *Psammophis sibilans schokari* (Forskål), a relatively large species attaining a length of 1480 mm. The other possibility is the back-fanged *Coelopeltis (Malpolon) moilensis* (Reuss) which is rather small (480 mm.) to tackle so relatively large a bird.

NOTE. Certain species of back-fanged African snakes, for instance *Dispholidus typus* and *Psammophis sibilans* appear definitely to associate a bird's nest as a source of food supply.

#### LIZARDS

(a) *Varanus exanthematicus* (= *albigularis*) (Bosc.), Savanna Monitor.

AFRICA: SUDAN. Sweeney (1952) captured a specimen in Kordofan which was eating a young francolin (probably *Francolinus clappertoni* Child).

SOUTH AFRICA. According to Stevenson-Hamilton (<sup>15</sup>: p. 113) this monitor is a forest dweller which is often found many miles from the nearest water. It is an expert climber and "an inveterate hunter of birds' eggs".

In *African Wild Life* (<sup>17</sup>) there is a description of a Harrier Eagle, *Circaetus* in the last stages of exhaustion in the grip of a 2½ ft. bush leguan (*V. exanthematicus*). The lizard which was uninjured had evidently seized the bird (and not the bird the reptile) and had it on its back, with a deadly grip on the bird's leg.

Newby (*in litt.*) "more partial to bird prey than *V. niloticus*. Dead birds, up to the size of a half-grown fowl are taken with avidity. They are normally swallowed whole. Fowls' eggs are crushed and swallowed whenever given."

(b) *Varanus salvator* (Gray), Common Water Monitor.

PACIFIC REGION. This large lizard, which sometimes attains a total length of 8 ft., should more appropriately have been included with "Aquatic Predators". Loveridge (<sup>10</sup>: pp. 61-63) records that in captivity it eats birds and eggs, the eggs being swallowed whole and gulped in rapid succession. In the stomach the eggs are crushed by muscular action and the shells dissolve in about a couple of days.

(c) *Varanus indicus* (Daud.), Australasian Monitor; and

(d) *Varanus dumerilii* (Gray), Duméril's Monitor.

INDO-PACIFIC REGION. According to Loveridge (<sup>10</sup>: pp. 64-65), both these monitors prey on birds.

(e) *Agama cyanogaster* (Rüppell), Black-necked Arboreal Agama.

AFRICA: NORTHERN RHODESIA. Mr. Johann Gouws (1959), near Kitwe, saw one of these lizards more than a foot long catch an African Pied Wagtail, *Motacilla aguimp* Dumont in a small tree near the ground. Both fell and were watched struggling for about one minute when the observer rescued the bird, but it died a few minutes later. It would have been interesting to see whether the lizard was capable of swallowing so relatively large a bird.

*Vide* (<sup>24</sup>: p. 23), in the Kruger National Park, with reference to *Agama atricollis* (now *Agama cyanogaster*), "A fight between one of these and a White-crowned Shrike, *Eurocephalus anguitimens* was seen to end undecided after a few furious rounds".

(f) *Calotes* sp., Variable Lizards: an Agamid.

PACIFIC REGION. Loveridge (<sup>10</sup>: p. 83), "Has been known to devour nestling birds".

(g) *Gekko gekko* (L.), Tokay Gecko.

INDO-PACIFIC REGION. Loveridge (<sup>10</sup>: p. 71), even small birds are said to be taken when opportunity offers.

(h) *Lacerta lepida* Daud., Ocellated Lizard.

EUROPE: S. SPAIN. According to Mountfort (<sup>2</sup>) this lizard, which grows to a length of three feet on the Coto Doñana, preys frequently on Bee-eater, *Merops apiaster* L. colonies, taking both eggs and birds from

the nests, which locally are tunnelled in flat ground. Congreve, too, "assumed the large-sized lizards of S. Spain must be eating Bee-eaters because one found them in Bee-eater nest-holes".

(j) *Gerrhosaurus major grandis* Boulenger, Zululand Great Plated Lizard. AFRICA: NYASALAND. Sweeney found that in captivity this large lizard fed readily on dead weaver birds and other small birds, which suggests that birds may be a normal item in the diet of this swift moving species.

(k) *Tiliqua nigrolutea* (Gray), Giant Skink or Blue-tongued Lizard. AUSTRALIA: TASMANIA. Warham (<sup>7</sup>: p. 607) suggests that this relatively massive lizard probably preys on the chicks and eggs of the Little Penguin in the Cat Island Bird Sanctuary, in Bass Strait. Loveridge (<sup>10</sup>: p. 98) states that in the wild state young birds are included in its food.

(l) *Mabuya perrotetii* (Gray), Perrotet's Skink. AFRICA: CAPE VERDE ISLANDS. According to Bannerman (<sup>18</sup>: p. 106), "on Branca islet (one of the small Rombos islands) of the Cape Verde Archipelago, Alexander's Little Shearwater, *Puffinus baroli boydi* Mathews "The birds are troubled in their nest-holes by a species of skink which, in (Boyd) Alexander's view, had been responsible for driving the petrels away from Raza where they formerly bred".

COMMENT. The only large skink on these islands capable of creating such disturbance is *M. perrotetii*, and in view of the next two notes (m) and (n) one can reasonably suspect that this skink is an egg-eater. C.R.S.P.

(m) *Mabuya wrightii* Boulenger, Wright's Skink. AFRICA: SEYCHELLES. Vide (<sup>19</sup>: p. 44 and 20: p. 582), this skink, which attains a length of 307 mm., is found, sometimes abundantly, on seven of the Seychelles group of islands where sea-fowl breed. It eats the eggs of the Sooty Tern, *Sterna fuscata* L. and the Noddy, *Anous stolidus* (L.), and if an egg is left unguarded the lizards at once get it. The eggs are broken by rolling them onto rocks or by biting the pointed end. This skink causes considerable damage to the bird population especially on those islands where it is abundant. It also eats nestlings not more than a few days old.

(n) *Mabuya sechellensis* (Dum. and Bibr.), Seychelles Skink. AFRICA: SEYCHELLES. Vide (<sup>19</sup>: p. 44 and 20: p. 582), this skink, which is slightly smaller (242 mm.), is an egg-eater like *M. wrightii*. But it is seldom strong enough to bite an egg open. It occurs on six of the Seychelles Islands, on three of which *M. wrightii* is also found. Both these skinks are very abundant on Aride Island where they do considerable damage to the bird population.

*M. sechellensis* has been seen to climb a tree and successfully bite open the egg of the White Tern, *Gygis alba* (Sparman), and twice it was watched rolling this Tern's single egg off a branch to be broken on the ground. It cannot tackle a chick more than a few days old.



NOTE. It is possible that other species of skinks—and also some other lizards—are addicted to egg-eating and this might help to explain some of the very high percentage of loss sustained by the eggs of many of the smaller species of African birds.

(o) *Chamaeleo melleri* (Gray), Giant One-horned Chameleon.

Sweeney, near Ngomeni (20 miles from Tanga), Tanganyika, found one of these chameleons eating a Fire Finch, *Lagonosticta senegala ruberrima* Reich.

### TORTOISES

*Testudo* sp., Galapagos Giant Tortoise.

PACIFIC: GALAPAGOS ISLANDS. According to Loveridge (<sup>10</sup>: p. 37), some species of these giant tortoises, which need meat in their diet, will catch and eat birds if given the opportunity.

### HOW A BIRD IS SWALLOWED

Several correspondents have described how certain African snakes, for instance *Python sebae*, *Dispholidus typus* and *Thelotornis kirtlandii*, stalk and seize living birds. They also mention how these snakes at first carefully examine dead birds which are offered them in captivity, before accepting them. Once caught, a bird is swallowed head first, tail first or sideways, according to how it has been seized. Tail first evidently presents no difficulty, but attempts to swallow prey sideways usually fail, and the victim has to be regurgitated, and is then swallowed head first.

Simpson observed that of six small birds consumed at various times by a 2½ ft. python, four were swallowed tail first, one head first, and the other stuck sideways, was regurgitated and then swallowed head first.

I am greatly indebted to all those who have so generously provided me with information based on their own experiences—and in particular to Mr. R. C. H. Sweeney for his numerous carefully compiled observations—or who have invited my attention to relevant references.

### SUMMARY

There is ample confirmation that the African arboreal snakes *Dispholidus typus* and *Thelotornis kirtlandii* are habitual bird predators, though in the case of the latter its choice of diet may be affected by ecological conditions.

The large, back-fanged *Coelopeltis monspessulana*, in Spain, preys on small birds and nestlings.

A black mamba, *Dendroaspis polylepis* lived in a house roof to enable it to feed on the colonial swifts nesting in the eaves.

Cobras (*Naja* spp.), both Asian and African, are relentless raiders of the fowl-run in their quest for eggs. A Cape cobra, *Naja flava* devastated a nesting colony of sandgrouse.

The arboreal forest cobra, *Pseudohaje goldii* is a doubtful bird predator, for in captivity it feeds on batrachians.

On islands off Borneo the sea snake, *Laticauda colubrina* preys freely on terns' eggs.

The venomous Australian tiger snake, *Notechis scutatus* is suspect as a predator of the Little Penguin.

Many species of viper on occasion will prey on birds, mainly nestlings and juveniles; the British adder is a skilful climber and a nest raider.

Those vipers—and other snakes—which feed primarily on warm-blooded prey will presumably, when hungry, always seize the opportunity of catching birds. But *Bitis gabonica*, on the evidence seemingly a raider of the fowl-run, is more likely after rodents.

Some of the pit vipers of the genera *Ancistrodon*, *Trimeresurus* (*T. wagleri* is a climbing species), *Crotalus* (rattlesnakes) and *Sistrurus* (ground rattlesnakes) prey on birds.

African pythons of all sizes prey on ground birds and aquatic species to a far greater extent than is generally known; Asian pythons feed freely on birds; and *Python regius*, too, sometimes takes a bird.

In North America many harmless species of snakes are bird predators, some are egg-eaters.

*Xenopeltis unicolor* and *Chrysopelea ornata* of the Far East, the large Asian *Pryas mucosus* (rat snake), *Dryophis nasutus*, *Dendrelaphis tristis*, *Oligodon purpurascens* and *Boiga dendrophila*—these last four also from Asia, all prey on birds, as do all Asian *Boiga*.

The British grass snake, *Natrix natrix* is a nest raider.

In Borneo, a harmless colubrid, *Elaphe taeniura* haunts a vast, dark cavern where the swiftlets *Collocalia* breed in myriads, to raid the nests and to feed on the fallen nestlings.

It is established that *Psammophis sibilans* is a bird-eater; and there is further confirmation that snakes of the genus *Telescopus* regularly prey on birds.

The African bush monitor, *Varanus exanthematicus* is probably more addicted to preying on birds and their eggs, than are other African and Asian species of *Varanus*.

There is a remarkable account of *Agama cyanogaster* preying on *Motacilla aguimp*, and also of a fight between one of these agamas and *Eurocephalus anguitimens*.

The giant *Chamaeleo melleri* is evidently an opportunist where waxbills are concerned.

Two species of skinks—*Mabuya wrightii* and *M. sechellensis*—cause havoc amongst terns' eggs on some of the Seychelles islands. The giant skink, *Tiliqua nigrolutea* of Australasia is another bird predator.

Other lizard, bird predators include the Asian *Gekko gekko*, *Calotes* sp. (an agamid), the European *Lacerta lepida* and the African *Gerrhosaurus major*.

Some species of the giant Galapagos tortoise which need meat in their diet are known to catch birds.

Various aspects of reptilian behaviour in relation to bird and egg predation are described.

1. Broadley, D. G. The Herpetology of Southern Rhodesia. Part I. Snakes. Bull. Mus. Comp. Zool. 120 (1), March 1959.
2. Mountfort, Guy. Portrait of a Wilderness. 1958.
3. Owen, Jennifer. Ibis 100 (4), Oct. 1958.
4. Uganda Protectorate. Annual Report of the Game and Fisheries Department. 1st July, 1957 to 30th June, 1958.

5. Laurent, R. Rev. Zool. Bot. Afr. LVIII, 1st—2nd October, 1958.
6. Smythies, Bertram E. The Birds of Borneo, 1960.
7. Warham, John. Ibis 100 (4), October, 1958.
8. Knight, Maxwell. The Field, 14th July, 1960.
9. Bannerman, David A. and W. Mary. Birds of Cyprus, 1958.
10. Loveridge, Arthur. Reptiles of the Pacific World, 1946.
11. Lake, G. D. The Field, 17th March, 1960.
12. Styles, L. The Field. 5th January, 1961.
13. "Sea Swallow", Annual Report of the Royal Naval Bird Watching Society, 12, 1959.
14. University of Khartoum, Natural History Museum. Annual Report, 1st July, 1956 to 30th June, 1958.
15. Stevenson-Hamilton, J. "The Low Veld", 1929.
16. Ennion, Capt. H. E. The Field, 11th August, 1960.
17. African Wild Life 1 (2), March, 1947.
18. Bannerman, David A. The Birds of the British Isles VIII, 1959.
19. Ridley, M. W. and Percy, Lord Richard. The Exploitation of Sea Birds in Seychelles. Colonial Research Studies No. 25. H.M.S.O., 1958.
20. Vesey-Fitzgerald, D. Ann. Mag. Nat. His. 11 (14), 1947.
21. Wright, Albert Hazen and Wright, Anna Allen. Handbook of Snakes of the United States and Canada. Cornell University. Vol. I, 1957 and Vol. II, 1957.
22. Uys, C. J. 'Bokmakierie', 12 (1), June, 1960.
23. 'Koedoe'. Journal for Scientific Research in the National Parks of the Union of South Africa, (1), 1958.
24. 'Koedoe'. *ibid.*, (3) 1960.
25. Wall, Col. F. The Snakes of Ceylon, 1921.
26. Tweedie, M. W. F. The Snakes of Malaya, 1954.

## Notes on some Ferruginous White-eye x Tufted Duck hybrids

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*Received 21st August, 1961*

As stated by Gray (1958) hybridization between the Ferruginous White-eye *Aythya nyroca* (Guldenstadt) and the Tufted Duck *Aythya fuligula* (Linnaeus) has occurred in both directions, and hybrids have frequently been reported both in the wild and in captivity.

I do not propose to list in detail all the published records of crosses between these species. However, it is of interest to note that at the Zoological Society of London this cross occurred on some seventeen occasions from 1848—1861, the hybrids continuing to breed either *inter se* or with one of the parents (see Selater *Proc. Zool. Soc.* 1880: 524). According to various authorities the hybrids are fertile, and so are their progeny. De Selys-Longchamps (1856) gives details of the further cross:—

Ferruginous White-eye x Tufted Duck

### Ferruginous White-eye

the progeny of which exhibited characters that were 75% Ferruginous White-eye and 25% Tufted Duck. H. Wormald, following a visit to Lord Grey's collection at Fallodon in 1925, remarked that there was quite a flock of these hybrids and that "apparently they all come alike whether bred as above (i.e. Ferruginous White-eye x Tufted Duck) or *inter se*." Recent examples of this cross occurred at the Wildfowl Trust at Slimbridge in 1952, and a male was seen in Regents Park, London, by Mr. D. I. M. Wallace in April 1961.